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ABSTRACT

These four papers presented at the Polytechnic of Central London School of Management focus on the management of technical innovation in libraries as it affects decision making, library organization, non-systems staff, and interlibrary cooperation. Procedures for implementing automation in a library are outlined: a system analysis and costing of the existing system, improved system requirements, manual alternatives cost comparisons, a feasibility study, new system design, programs, systems recosting, staff training, and postoperational system improvements. The probable impact on library organization of the rapid increase in distributive computer processing power is discussed, as well as the effects on technical services departments and reactions by non-systems staff. One library system's experience in coping with negative staff reactions and cooperative arrangement between two libraries illustrate possible problems and benefits of library automation. Library organization and interlibrary cooperation papers list six and 17 sources, respectively. (RBF)

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REPORT NO. 8

The management of technical innovation in libraries

proceedings of a conference

CENTRE FOR LIBRARY AND INFORMATION MANAGEMENT

DEPARTMENT OF LIBRARY AND INFORMATION STUDIES

LOUGHBOROUGH UNIVERSITY

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The proceedings comprises four papers delivered at a conference on the management of technical innovation in libraries organised by the VINE Office, Southampton University and the Information Officer for Library Management, Centre for Library and Information Management, Loughborough University. The conference was held at the Polytechnic of Central London, School of Management on 23 April 1980.

c CLAIM 1981

INTRODUCTION

At the present time it is difficult for managers to attend all of the conferences that are organised which are of interest to them.

For this reason CLAIM will be making available the papers presented at conferences which it has arranged, at a minimal cost.

We regret that publication of the proceedings of the conference on the management of technical innovation in libraries has been delayed. We had hoped to reprint all of the papers presented, but for reasons outside our control this has not been possible, and so four out of the five papers are given in the published proceedings.

CONTENTS

	PAGE
The effects on decision making of automated systems **Rollo Woods**	1
Computerisation and Library Organisation **Neil McLean**	7
The attitude of non-systems staff to automated systems **Norman Turner**	13
The effects of inter-library co-operation on the priorities of individual libraries **Reg Pringle**	23

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THE EFFECTS ON DECISION MAKING OF AUTOMATED SYSTEMS

Rollo Woods, Deputy Librarian, Southampton University

This is a conference of Librarians, and therefore it is a conference of decision makers. We spend our time making decisions - big decisions about budgets if we are in senior grades, little decisions about loans and recalls if we are just starting. Managing a library, indeed, is very much a matter of getting the right information together, and getting the right decisions made, by the right people. The enthusiastic junior who goes too far, actually, is less of a nuisance than the lazy type in the middle grade who prefers passing the buck to making up his/her mind. Having said that, I am, of course, aware that a librarian's scope for decision making will be limited by various outside forces, financial constraints being only the most obvious of these. I am to deal with a restricted field today - the decision making process.

Staff relations and the problems of co-operatives are also important but they will be dealt with by later speakers.

I am going to assume, incidentally, that everyone here knows how a computer works, and that I can use a certain amount of computer jargon without leaving anyone behind. I know this is a dangerous assumption. We made it once some years ago, when we gave a supposedly well - read audience nearly 45 minutes of, for those days, fairly advanced stuff on a computer based system. At that point a bewildered voice asked: What is binary arithmetic? So please feel free to stop me if I go too fast.

I suppose we all have a mental picture of the traditional autocratic chief librarian, a remote figure dressed like the bank manager, who was seen by junior staff only when things were going wrong. His job was to take decisions and issue instructions. His staff were there to carry these instructions out. He had earned the right to issue orders by long experience in lower ranks. There was, at least in theory, no job in the library that he had not done, and none which he could not still do better than anyone else on the staff, at least in his own opinion. Some of these men were brilliant - there are obituaries in the Library Association Record almost every month to prove it - others were less successful.

Autocracy has no place in an automated library. All major decisions - and a surprising number of minor ones as well - must be, if not actually democratic, and taken by secret ballot, participative. Every decision involves research, outline plans, discussion, detailed plans, agreements in principle and in detail, before any final conclusion is reached. This is the theme of my talk today. It is enough to make the old style librarian turn in his grave.

I am going to speak first about the decision-making process for a new system. Later I will say a little about the same process as it applies to an operational system.

There are bad reasons for deciding to automate a library, like keeping up with the Jones's or improving your library's image. It may be pressed by the parent body to which the library belongs - it may even be urged by the manager of a local computer who has some spare time and has thought

of a clever acronym. I sometimes think that the acronyms come first and the system is designed to fit them afterwards. Today there are good reasons for automating almost any large library, because, properly done, it can lead to staff savings and improved services. However, it cannot be done hastily, and it is still possible to get everything wrong, and find yourself with a system that does not work as it was meant to, costs a lot to run, and needs a lot of extra staff.

May I point out here that all library planning, in a general way, starts from one of two points. Either there is a need to be met, and so a system is designed to meet it, or the library knows it has certain limited resources - books, staff, accommodation, equipment, and, of course, funds - and so designs systems which make the best use of them. My own experience is that the second rate is the more usual, especially at the present time.

If decisions involve the participation of the staff, then some way of organising that participation must be devised. If you read the early papers published by BLCMP or SWALCAP, you will find accounts of the various committees and working parties that were set up, and the reports they produced. An individual library may not need anything so elaborate. At Southampton University Library there are no early papers of this kind - we made some decisions that were never properly recorded - but from about 1968 we have had a Technical Processes Working Party, which has produced subordinate working parties. Technical Processing Working Party, being rather a mouthful, it was referred to by its initials, and then, after a stressful meeting at which some gentlemen lost their tempers and some ladies resorted to their ultimate weapon, it became, and has remained, Teepy weepy.

If you have a committee, you must have a secretary, minutes, and agendas. There will also be a lot of papers produced. In 12 years Technical Processing Working Party has produced over 120 papers, some of considerable length and complexity.

An automation working party need not be quite the same as an ordinary staff consultative meeting. Its membership can be flexible, with representation of departments whose plans for automation are under consideration being increased, while others are reduced to a watching brief. Nor should it be limited to the senior staff. If a mistake gets into a computer file, it is difficult to get it out again, and the mistakes are made by the junior staff who put the data in. They also need to be on the working party. We have had several years of a Data Collection Unit designed for the right handed - it was a left handed junior pointed this out. Similarly, the data preparation staff - usually converted typists - are best qualified to discuss keyboard layouts, proformas, catalogue source data sheets, and so on. Technical Processing Working Party has always included the typing supervisor, and she has equal opportunities for computer appreciation and so on.

I mentioned reading other people's reports. Of course it is the duty of everyone in any profession to keep up to date with developments by reading journals and checking for abstracts. This does not apply only to the most senior staff. No one should expect to be consulted about decisions unless they are prepared to do the background reading, beginning with books on computers and automation, and then keeping up to date with Program, Jola, and VINE. A system for circulating journals

is useful, though it may need a bit of policing. I also recommend reading one of the Computer weeklies to keep up to date with technical developments. Don't leave that to the computer staff. Try to make them read VINE as well.

When we first went into automation, we started with one problem, and designed one system. Today it is more usual to assume from the start that every housekeeping system will get automated in turn, as part of a single project. There is no doubt that this is the correct approach, but detailed planning pretty well has to be limited to one system at a time. This applies whether you are automating independently or by joining an existing co-operative, or even, though I can't see why one should, forming a new co-operative.

Whatever you do, the first stage is to conduct a proper system analysis of your existing system(s). You can do this yourselves, but if you think it is likely that you will be going into automation, it may pay you to engage a professional systems analyst at this point. A good systems analyst has been trained to study systems in detail, by direct observation, without being misled by the official standing instructions. In a library that has been running for some time, most of the staff will probably have learnt the current practice by "sitting beside Nellie", and there may be quite a lot of variation between standing instructions and actual practice. The analyst's report may quite will suggest changes in the present system without, or at any rate before, automating anything at all.

The other thing that must be done at this stage is to cost the existing system. Very few librarians have ever done any proper costing, and it often shakes them when they do.

The most that the average library can do for - say - acquisitions, is to work out the total cost of the department - staff, stationery, equipment, maintenance and depreciation - and divide it by the number of books bought to get an overall average cost per book. When you need data for an automated system, this is not enough, because one of the problems with any system is deciding at what point the decisions cannot be made by a machine, and must be made by a person. If you don't know how much each system costs now, how can you decide which options can be economically handled by the machine, and which would be cheaper for the staff to deal with in person. There are various ways of costing automated and manual systems, and I comment to you the Office Science and Technical Information report by Geoffrey Ford on the subject.

With this data in hand, a library is able to decide whether to proceed. The next step should be to specify the requirements for an improved system, and work out whether automation makes them attainable, and what they will cost. This is where the working party comes into its own. All the people involved in the existing system, even if they work in a different department, should have a chance to put their views, and the work party will have to collate them. The systems analyst may be able to show that the current problems and expected demand for services in the future can be met by improvements in the manual system. If you have a Systems Analyst like that, hang on to him or her.

Certainly, before deciding to automate, look at manual alternatives and to a comparative costing of the options.

You will notice that the actual decisions that I have referred to are taken after the data has been collected and analysed. This is the opposite of the autocratic off the cuff ukase.

So far we have involved the library staff and a systems analyst. When a library starts on designing an automated system, additional people are added to those who participate. The representatives of any co-operative will want to make a feasibility study, and this has many aspects of a systems analysis. If, as is very often the case, the computer used by the local host organisation is to be used, the data processing manager will want to know what facilities he is expected to offer. Incidentally, even if he offers his equipment free of charge, do your costing as though you had to pay. If you don't pay, you show a nominal profit, and if you do have to later, at least you have allowed for the extra expenditure. The D.P.M. should join the working party, and things like frequency of processing and file sizes should be discussed with him. He may find the files are going to be too big to handle on his computer. Certainly by University research standards, library files are enormous.

Once again, the decisions about the design of a new system will be taken after the data has been collected. The systems analyst will do the actual technical drafting of the system, and a lot of it will appear as flow charts. It is a good thing for all those involved to learn to read and draw flow-charts. Not only does it help at the design stage, but later, when the system is operational, the local line managers will have to send instructions for batch processing to the computer operators, and these are often sent as flow charts - again, if you expect to be involved in the decision making process, you must do your homework.

Part of the system design will include the selection of equipment. There are two factors here that may limit your choice. First, the host computer may have special software which accepts data from one particular kind of keyboard only. The second is that if you are joining a co-operative, specific equipment may be required by the system. This applies, in fact, not only to keyboards, but also to Data Collection Units. None of this equipment is perfect, and some have a limited range of functions. It is important to look ahead, decide on facilities that will be needed in a few years time.

Do not, however, look too far ahead. Most computer peripherals have a working life of 7 years. The first two are spent by the manufacturer in making the equipment perform according to its advertised specification. This is called "teething troubles"; some machines never outgrow them. The last two years will be spent in trying to persuade users to switch to a new machine which does the same job much better, more quickly, and with many extra facilities. When enough people have made the switch, maintenance contracts on the original machine will be cancelled, and probably all the spare parts will be thrown away as well.

Aim, therefore, to buy equipment that came on the market about 2 years ago, and whose performance can now be trusted. Allow about 10% of purchase cost for annual maintenance - if they want more, it means it isn't reliable - and put money aside for replacement equipment as well. When inspecting a possible machine, take one of the future operators along so that they can check how easy it is to handle, and what kind of environment it will need.

At this point, a programmer can be commissioned to start converting the system design into a program suite. Now although in theory the whole system should be cut and dried, in fact a good deal of design work goes on during the programming and testing phase, and so direct contact between the programmer and the library staff, including always the future operators of the system, is very important.

This is a good reason for employing a programmer on the library staff. If a software house is employed, some channel of communication has to be set up; for example -

Programmer - Software house manager - Library manager - Library executive - and back by the same route. A long program suite may take months to write, and something is certain to get lost on the way each time a problem appears - in fact, I regard handing a job over to a software house, which then sends in a supposedly fully tested program suite some months later, and then retires from the scene, as a recipe for disaster. (Anyway, software houses have been known to go bankrupt and disappear.)

A record of all the decisions made about a new program must be put in the system documentation. This file of documentation is very important, because without proper documentation the system functions only so long as the original programmer is available. He must include the programming flow charts, the actual instructions in machine readable form, the test data and all operating instructions. Incidentally, it is a good idea to let the library staff prepare the test data. They know the snags that turn up, and it helps train them to use the system.

At this stage it is possible to recost the system. No one would be likely to abandon a system at this stage, but it may be necessary to drop some rarely used and expensive options, or to reduce the number of runs made to keep within the set cost limits.

Another job for the systems analyst and the programmer is to train the library staff to operate the system, both those who use it regularly, and those who come in on evening duty or when flu has decimated the staff. One of the regular staff should be specially trained to train new staff.

As soon as the perfectly designed and programmed system is operational someone will think of a way of improving it. Every improvement, which in itself should be welcomed, naturally, involves decisions, and it is important to ensure that these decisions are not made on the spur of the moment, but are discussed, tested, and added to the documentation. If you don't do this, then in a few months a key assistant will leave suddenly and no one will be able to make the system work again. The library's management needs to be on the watch all the time to make sure this doesn't happen. It is what we call the If you walk under a bus syndrome.

Computer systems are usually designed to keep their own statistics, and as far as possible the computer should do all the work. By that I mean that it should not only calculate what it does each day, but also cumulate the fugures, and present a monthly and annual statement. If the computer store is not large enough, of course a log book will be needed. You need another log book, too, for recording machine faults, the engineer's visits, and any comments on the services provided. All

machines breakdown, and usually at lunch time on Saturday, or in the first week of term. Murphy's law applies more to computers than to most things in libraries. From these statistics it is possible to do fairly continuous costing of the system, which is usually worth while.

From time to time, there are requests for special runs from the data in the system, often one off jobs which only the existance of a machin-readable file makes possible. If you decide it is a good idea, check with the automation staff on costing and time. They may offer a choice of a cheap solution, which can be run next weekend, or a more elegant one, that will take 6 months to program. Find out how often the job will be needed before agreeing to a long programming commitment. What they may call a "quick and dirty" solution may in practice be much more useful. Even then, keep a record of the decision and the costs ultimately incurred.

I am not to discuss in detail staff/computer relationships, nor the problems involved in joining a co-operative. The latter is one of the biggest decisions that a library may have to take, and so, like all automation decisions, it requires careful collection of data (including vetting that supplied by the co-operative) and thorough discussion of all the problems and opportunities offered.

We are moving, slowly but, I think, surely towards a society in which paper plays a far less important part - I do not think an entirely paperless society is on its way - and every library system will be affected by the changes ahead. There will be a lot of decisions to make, and I therefore end as I began, by urging that, when a decision has to be made, all those involved should be asked to participate - and all those involved should have done their homework, and be ready to do so.

COMPUTERISATION AND LIBRARY ORGANISATION

Neil McLean, Head of Library Services, Polytechnic of Central London

The main point of my paper is that whilst automation has had a significant impact on the way we think about library problems it has yet to have any far reaching effects on the way in which we organise our libraries or indeed on the way in which we respond to user requirements.

I do not wish to enter into a semantic discussion on the definitions of organisational structures as there are clearly many different structures within libraries in the U.K. It is for the reader to interpret my broad generalisations in terms of his or her own library.

In assessing the effects of computerisation it is necessary to bear in mind that librarians have been operating in a decade where numerous pressures have forced a change in managerial attitudes, and computerisation is but one of these pressures. Libraries have been far more self conscious about their aims and objectives in recent years and the reasons for this are becoming clearer. Inflationary pressures and the tightening of funds have forced librarians to look at themselves more closely than ever before; to analyse how resources are allocated, to assess the range of services to be offered and as a result to articulate their aims and objectives more clearly.

There are several manifestations of these pressures worth noting. Management styles were adopted from other fields of activity and applied to library organisations with varying results. Many libraries have experimented with new corporate management structures in an effort to maximise the response to the increased pressures. The act of decision-making has become more self conscious and the move to participative management has produced more diffuse patterns based primarily on a significant increase in committee style meetings.

Cost effectiveness has become a byword and much work has been done in applying measurement techniques to the various aspects of library organisation. But in spite of this work the relationship between cost effectiveness and the goals and objectives of library services has remained elusive. There has been a corresponding increase in user studies in order to define more accurately what users require of library services. Whilst such studies have brought an increasing awareness of the range and complexity of user requirements they have not produced any fundamental changes in the way services are offered. The pressures of inflation, increasing demands, and the information explosion have made it increasingly difficult for the library manager to plan ahead, and success has been limited in responding to these changes in the general library environment, with any controlled strategy. Automation has been but one factor in this time of change.

In order to assess the impact of automation on library organisations I shall divide the analysis into several areas.

The most obvious of these is the operational processes and routines involved in supporting services. There appear to be two basic aims behind the desire to automate library processes: (i) to be more efficient in what is already being done and (ii) to offer services and support which could not be achieved manually[1]. But the earlier developments had a limited perception of these aims in that most projects were designed to solve particular problems within fairly tight budgetary constraints. It meant that cataloguing systems, circulation systems, periodical lists, subject indexes and acquisitions systems were

subjected to a variety of independent computer projects.

Because these projects developed in isolation from each other the success or failure (and in many cases success was extremely limited) of these ventures had little impact on the library organisation as a whole. Most projects were implemented without a great deal of analysis of existing systems. The lack of expertise to cope with the new technology meant that systems and programming staff who were employed in libraries, or in conjunction with local computer centres, had little previous experience of library systems. Many earlier projects depended on the enthusiasm of particular individuals within the library from the Chief Librarian down to new graduates out of library school. The lack of computer experience was reflected in the design of the systems which were developed within the constraints of the resources available and often there was little consultation with library staff.

Most libraries have had rather cumbersome issue systems and it was in this area that significant gains were expected in achieving greater efficiency and to a lesser extent in providing management information to formulate better loan policies. But most circulation control systems, whether inhouse or agency services, tended to reflect practices already in existence. There is some evidence that less staff were nedded to control the flow of material and whilst day to day activities for staff involved in this work have changed somewhat it is difficult to detect any basic organisational changes. There is no substantial evidence that loan policies have changed significantly in spite of the claims that management information now exists to bring about such changes.

In some respects there is evidence of greater change in cataloguing departments. It is certainly a fact that the concept of technical services has taken on more importance and the terms of reference for Head of Technical Services has in many cases widened in recent years, to include at least the stock file requirements of a circulation system and often to head computer developments for the organisation as a whole. On occasions this heightens the traditional tension between technical services departments and reader services and it has led some libraries to abandon the idea of having so-called computer specialists in technical services departments, or indeed in any other department, and to involve line managers in the development of new projects.

One suspects that the actual functions of technical services departments have not yet radically changed in nature because most of the existing computerised systems reflect the traditional aspects of conventional manual cataloguing techniques. Computerisation has added a new dimension in that the degree of quality control required is higher than in manual systems. To this extent staff working in cataloguing simply find a greater dichotomy in the nature of their work in that it is not easy to delegate this checking to junior staff hence professionally qualified staff often have an increased level of high grade clerical routine. Most existing systems are based on batch mode processing and they require extensive manual backup systems very similar to those existing before computerisation. The move to online data input may help to alleviate this problem in that there will be greater data security and this should lessen the need for manual backup files.

The development of these systems often produced various degrees of alienation at both the managerial and operational level. It gradually became clearer that systems did interact with each other and that any attempt to change one system had a "ripple" effect on others, sometimes

with adverse results. The most noticeable feature of these projects was the fact that the computer systems reflected very much the old manual way of doing things whether it be issue or cataloguing systems. Moreover the signs of increased efficiency were often minimal and in many cases the system required a greater amount of manual input. Systems thinking, however, did begin to develop in terms of the organisation as a whole but neither the processes as a whole nor the goals of the service were fundamentally affected.

I wish to refer briefly to information retrieval in terms of accessing computerised data bases which is now firmly established in many libraries even if in a limited fashion. Progress has been hampered by the high cost of telecommunications and activity has been mostly confined to serving those who can afford to pay at least some of the cost of the search. In general one or two people in any library have been trained in the basic techniques and operate the service on behalf of the library as a whole. In more recent times some libraries have extended the number of staff involved either directly or indirectly but the activity is largely confined to providing maximum currency on bibliographical searching. Few libraries have as yet had to reorganise themselves to accommodate present levels of activity. But it is likely that the questions of functional librarians versus subject librarians and librarians versus information scientists will reassert themselves as these services become more accessible to libraries. Allied to this development is the question of payment for such services and my feeling is that librarians become much more self conscious when the customer is in the position of paying cash for the results. I do not wish to enter into the current debate concerning payment or non-payment for these services but should payment become the norm it will be interesting to see if aims and objectives take new directions.

I now wish to consider the effects on the organisation from a different standpoint. One of the major impacts of the computer developments of the 1970's was a trend towards centralisation of many systems to fit the nature of batch mode processes. Given that many library services are departmental or multi-sited, the effects have been significant. It has meant in many cases that the acquisition, cataloguing and classification processes have been removed from the point of service to some central administrative point. The justification for this trend, irrespective of the systems requirements, was that it would free staff involved in reader services from tiresome administrative routines and allow them to concentrate more fully on serving reader needs. This appears to have had mixed results. It has certainly brought uniformity in place of a variety of local systems and many librarians consider this to have been a step in the right direction. At the same time, responsiveness to the reader enquiries is often hampered by the fact that no immediate answer can be given for example, on the whereabouts of recently ordered material. But this must be offset against the fact that union catalogues in microform allow greater accessibility to the total resources of any particular library service. In organisational terms it has often meant some reduction in the autonomy at the local level within a department or site. The management techniques and the communication level between the various parts of the structure often fail to grapple with the problems generated by the new systems and this has been aggravated by the facts that the benefits have not always been self evident. The situation has been exacerbated by the fact that the staffing of many central units was at the expense of departmental or site libraries and an apparent movement from what appeared to be reader services to technical services has met within a certain amount of resentment at the local level.

At a broader level still it is worth reflecting briefly on the implications for the library organisation as a whole when it become dependent on outside agencies for computer services. This has been a growing trend in the last few years and it is probably too early to assess the overall impact. But it does seem that the services offered by the co-operatives for instance, whilst causing libraries to look closely at their activities, have not actually caused any basic reappraisal. In fact I sometimes think that libraries have to think even less about their aims and objectives in importing systems in that they accept the conventional wisdom of what the system offers.

If I have underestimated the impact of computers on our libraries in this summary it may be because I anticipate a greater impact still to come which I suspect will not only affect the way we organise ourselves but our entire goals and objectives.

It is always a hazardous process looking into the future but knowing that the computer technology already exists for substantial changes in the storage and transmission of information it must surely be only a matter of time before our libraries become part of the revolution. I wish to refer you to an interesting article by F.W. Lancaster (2) who has written a scenario from the viewpoint of 2001 on developments over the next twenty years. His main points are that digital transmission through satellites in the 1980's will transform telecommunications costs; that secondary material will be almost entirely accessed by computer by 1985; that journals will enter the electronic publishing age and will be well established by 1990; that primary material will follow at a slower rate but nevertheless inevitably during the 1990's.

As you might imagine he sees considerable implications for libraries. In the first place the public will have direct access to information through their own terminals hence less reliance on the library as a provider of information. Information brokers will increase through the earlier phase and be in direct competition with libraries. As electronic publishing extends, the need for physical resources will diminish and libraries will potentially become archival repositories. The transfer of records of items would be such that technical service departments as we now know them would virtually disappear. At the same time the need for interlibrary loans would dwindle also. The library would "reinstitutionalise" in that the librarians will become expert advisers in the information field which will be no less complex to manage, given the enormous diversity of available data.

Now I realise that such scenarios are almost certainly over-optimistic in that the development of the hardware is not, and will not in the near future, be matched by similar advances in software development. For a sobering account of the current difficulties in the library world it is worth referring to a recent article by Paul J. Fasana(3) in which he outlines the problems in bibliographic control, online catalogues and networking. But having said that, librarians are still left with the prospect of facing considerable change and it could be argued that the problems outlined by Fasana have arisen because librarians do not have a vision of the future, hence the pragmatism inherent in much of the current computer activity.

The central dilemma for all library managers is how to react to the prospect of radical change. On the one hand it seems that most libraries could safely ignore the implications and survive in the short to medium term; on the other hand there is the uncomfortable feeling that it

would be extremely unwise to take such a path. But most of us tend to follow the former path simply because we are struggling to meet our existing commitments and retrenchment rather than change becomes the norm. Lancaster speaks of "deinstitutionalisation" before "reinstitutionalisation" and the problem for library managers is to know how to invest in the new age, and I do not mean merely with money and technology, whilst retaining acceptable levels of service within the obvious constraints of the present period. There is little doubt that it will involve strategies of innovation much bolder than anything we had had to deal with in the past.

Miriam Drake (4) (5) makes a number of important observations relevant to our task of planning change. She asserts that library administrators will have to adopt innovative strategies to meet the requirements of a changing society and that library staff will need to radically readjust their basic assumptions and their current practices. She goes on to say that the gap between current library and information services and the potential that could become a reality if existing technology were adapted to user information needs is likely to widen and that each library must identify its own particular unique features and have a clear perception of how to apply the new technology to is goals and objectives. My own view is that we may be forced in addition to reassess all our library services in terms of what we mean by effectiveness and productivity. The fundamental irony of most good library services is that success can quickly outstrip the human resources available to support the service. It is interesting to speculate whether the computer will move us into areas where once again we have insufficient human resources to cope with the outcome of the increased access to information.

It is going to be a critical time in that most libraries will need to take some risk in investing in change which almost certainly will have to be met out of existing resources. This will have a considerable impact on the morale of staff in that they will see short term objectives, as they perceive them, being eroded for the time being in pursuit of long term goals. It will be essential that the relationship between long term goals and immediate objectives be reconciled wherever possible and it will be necessary for these to be understood throughout the organisation. In making these long term decisions it is likely that libraries will need to reallocate some of their resources in different directions and this will probably place renewed stress on existing systems.

But the most significant impact is likely to come from the rapid increase in distributive computer processing power. At the broadest level the moves to centralise administrative support for services in the interests of economy and efficiency may well be reversed as all departments or sites have direct access to computer systems. Having spent a decade building up adminstrative structures to support centralisation it will be interesting to see how librarians respond to this challenge and to see whether there is a shift in autonomy back to the local level. At the very least there is likely to be a restructuring of work within technical services departments in that online cataloguing will demand a rethinking of most existing work flows. At the other end of the spectrum it may lead to the dismantling of technical services departments as we know them with a return to data input from the local level.

It will involve many more library staff in learning new skills and this in itself is likely to produce quite a deal of psychological tension and a change in traditional roles which will probably cause uncertainty at all levels within the structure as members of staff attempt to redefine their roles. It will mean that staff training programmes will become an essential part of every management strategy rather than peripheral activity as I suspect most programmes are at present.

There will be a far greater stress on the communication links within the organisation and given our poor record in this field it is a matter of some concern. One of the ironies of the participative management trend has been the fact that the decisions to be made require a depth of knowledge and a perception of the future that is difficult to attain in the collective sense. It may be that individual leadership well re-emerge as an important factor in establishing the longer term goals of change but at the same time there will need to be much more involvement of staff at all levels in establishing the necessary objectives for implementing the change.

There is likely to be considerable institutional resistance to changes of this potential magnitude and this is likely to manifest itself in a much more active manner through trade unions in the library field. So far there has been no significant opposition to computerisation but it is difficult to assess whether this is due to the relative weakness of unions within the library profession or whether it has not been perceived as yet to be a potential threat to jobs or to the way members have to carry out their tasks.

I have referred briefly to a range of issues affecting libraries as organisations. The debate on these matters has been rather limited in the U.K. and there is considerable scope for further discussion on a number of these issues. The shape of libraries for the future will depend on library managers having a much clearer perception of the information requirements of our users: a much more informed idea of how computers can harness the information and a vastly increased knowledge of how to influence change in existing library organisations in order to make the information more accessible.

1. For an elaboration of this concept see:

   Montague, Eleanor. "Automation and the library administrator", Journal of Library Automation, 11(4). December 1978, p. 313-323.

2. Lancaster, F.W. et al. "The changing fact of the library: a look at libraries and librarians in the year 2001". Collection Management, 3(1). Spring 1979, p. 55-77.

3. Fasana, Paul J. "1981 and beyond: visions and decisions". Journal of Library Automation, 13(2). June 1980, p. 96-107.

4. Drake, Miriam A. "Managing innovation in academic libraries". College and Research Libraries, 40(6). November 1979, p. 503-510.

5. Drake, Miriam A. and Olsen, Harold A. "The economics of academic libraries". Library Trends, 28(1). Summer 1979, p. 89-105.

THE ATTITUDE OF NON-SYSTEMS STAFF TO AUTOMATED SYSTEMS

Norman Turner, Depute Director of Libraries, Falkirk District Council

The title of my talk: The Attitude of Non-Systems staff to Automated Systems, seems at first to be a fairly clear remit. But staff attitudes to automation like staff attitudes to anything at all, are of course infinitely variable.

My initial thoughts about this talk today were uncertain. Firstly, because of these variable factors affecting the formation of staff attitudes I could hypothesise situations until the cows come home. On the other hand, I have an almost pathological aversion to 'How we did it' talks.....

However, with this theme today, there is a need to be specific and I hope that I will be forgiven for basing my examples on Falkirk District Libraries. I shall try to pinpoint some of the factors that affected the initial staff reaction to the idea of automation and then describe some of the ways in which the Departmental management tried to shape and develop these attitudes in a positive way.

Now whenever I use the term 'human beings' or people or suchlike, I will be referring to that group of individuals known collectively as non-systems staff. Already, the computer is creating new classes in society!

The remarkable thing about computers is their power to provoke an emotional response from human beings. These pieces of meachanical apparatus (I was going to say hardware but even the meaning of words has become distorted by computer jargon) which are designed to promote man's logical thought processes inspire the most irrational and impulsive behaviour from their potential users. The presence of this 'latent Luddite' in many of us should not be dismissed too lightly. Initial reactions range from uncertainty and suspicion right through to real fear - a fear that causes palpitations and panic reactions. The starting point then is acknowledgement of the fact that people are intimidated by automation and all that it seems to imply.

This poses a real problem so far as the management of technical innovation is concerned, because this fear experienced by staff can create an aggressive, or at best unhelpful, attitude and this is the last thing any manager requires when installing automated systems. It is a complex and demanding management task and requires a mutual sense of purpose and a mutual sense of direction.

Moving from this general observation to the variable factors that affect attitudes, it is tempting to try to identify common denominators. For example: age, education, previous library experience, personality, professional specialisation, staff seniority or political background.

These starting points then require to be considered in relation to the particular form of automation involved. Whether it is circulation, cataloguing, acquisition, information retrieval, office procedure or management control.

Even if you get this far, attitudes will relate to other variables: what is being replaced? What is the likely affect on the service and on the staff? What are the attitudes of other staff?

When automation was first mentioned in very general terms at Falkirk the staff immediately adopted their various stances. This occurred immediately after local government re-organisation when Falkirk District Council was formed by the merging of Falkirk Burgh Library Service, Grangemouth Burgh Library Service and parts of the County systems of Stirling and West Lothian. We were still assessing the most effective ways of bringing together the four different issue and cataloguing systems, and just about everything else for that matter. Inevitably, when discussing new operations and procedures, the computer kept on cropping up in conversation as a possible option. The usual response to such suggestions was one of scorn. I should point out that only two members of staff had previous experience of automated library systems.

These preliminary tentative comments, of course, raced along the grape-vine - the one line that is never down - and there were rumours of machines replacing people and the usual comments: 'it was never like this before re-organisation'. One of the local newspapers serving one of the previously independent Burghs picked up this rumour and wrote an article bitterly attacking this latest move to disturb the status quo.

So the fear and irrationality were there. Ian de Banzie, Information Officer of B.P. Chemicals Limited summed this up rather nicely in a talk called 'Computers - include me out'. He said, "Don't get me wrong - I am not against computers - it would be most irresponsible to do so. It is rather like hating sand because it can be put in socks and used to hit old ladies with".

The time had come for detailed fact-finding. Obviously, with the new Department of Libraries and Museums still working to establish its own sense of identity it was vital to obtain maximum staff involvement and so the inevitable Working Party was formed with one representative from each service point, together, initially at least, with the Council's Computer Manager (one of the Finance Department staff). The Working Party was chaired by the Depute Director and, like all other Working Parties reported to a monthly meeting of Departmental Senior Staff. The remit of the Working Party was to view automated library systems in general and to make recommendations on any applications that were likely to be of benefit to the Department. The Working Party had three major incentives:

1. General staff dissatisfaction with certain of the existing systems - especially photocharging and cataloguing practices.

2. A feeling that staff were not fully aware of what was available in the field of automation.

3. Additional pressure created by a 25% increase in book issues during the years 1975 to 1978.

We tried to establish the idea that man was master of the machine and that the machine should fit in with the preferred system and not the other way round. The staff with computer knowledge tried to forget what they know and the Working Party started with this question: 'In an ideal situation what would we like a machine to do for us?' A list of items was compiled, for example:

Issue and discharge books.

Automatically trace reservations.

Write overdues.

Provide an up-to-the second Union Catalogue at all libraries.

Be operational at static and mobile libraries.

Automatically remove 'dormant' readers from the membership file after X months, etc. etc.

This seemed a very unlikely prospect but we proceeded to plough through the available literature. Then in the proceedings of an American conference we came across an account of the new system installed in San Marin County, California. By conincidence, this authority had the same number of service points and the same population as Falkirk District and was operating a system which matched our specification exactly.

We decided to pursue this further and obtained information on a number of systems. At a later date the full Working Party saw representatives from I.B.M., Plessey and Real Time Control (in respect of the telepen system).

Two things became apparent:-

1. Our specification was feasible and would dramatically improve the existing system to readers.

2. We could not afford it.

The money for the full system could not be justified although Plessey and Real Time Control could provide equipment for some basic items - to be enhanced at a later date when possible.

By using a decision- making process that considered Hardware, Software, Manpower Services Commission resources, servicing procedure, expertise and cash, recommendations for a system covering circulation and cataloguing were made and accepted by the Director and Committee. This really marked the turning point in staff attitudes. The Chairman had acted vigorously throughout in calling to order anybody who lapsed into jargon and so one member at least of each service point was now able to go back to his or her colleagues and explain in basic terms why automation had been recommended, why this particular system had been selected and how it would improve the service. We were trying to avoid the type of situations highlighted in a recent article in the Danish publication BIBLIOTEK 70. The title of the article is translated as follows:-

"How do we prepare ourselves when streamlined automated solutions are being steamrollered through?".

Now that the decision was taken, we had to consider the implications for other possible developments and so the Working Party members each took on a study subject - these were: Teletext, Prestel, Word-Processors,

On-Line Information Retrieval Systems, Blaise and Micro Processors. The members of staff who had been allocated these study subjects were working with automation for the first time. They were left to their own devices to make the appropriate contacts and information searches but were given a date by which reports must be submitted. Frankly, I was surprised at the application shown by the individuals. For example, the member of staff researching Word-Processors made individual contact with over 40 companies.

The professional staff of the Department, at least, were acquiring some knowledge of automative systems but confidence was not being gathered at the same rate. We were also aware that the subject was constantly changing and that our newly gained state of current awareness had to be maintained. The formal announcement of the decision to instal an automated system brought the various attitudes out into the open.

Referring back to the variable factors, age and education, perhaps surprisingly, did not appear to affect attitudes with any constancy. The school leaver shared the same trepidation as the staff of retiral age. The fact that the recent Library School leavers shared the same opinions - or prejudices as other professional staff was less expected.

My first introduction to library automation was at the Library Association Conference in Brighton in 1968 when Gordon Bearman demonstrated the new A.L.S. system being introduced at West Sussex. There was an assumption at that time that practicing staffs in libraries would find difficulty in coming to terms with the so-called Computer Age, but that Library School students would be the first of a new breed of librarians. This new professional generation would be informed and confident in their use of this technical aid.

However, an analysis of the attendances and reasons given for attendance at the innumerable courses on automation indicate that the new professional is as uncertain and timid as his or her predecessor. The comment has been made that if you talk down to people about automation they will respond with gratitude. Three years ago the Central Scotland Training Group, a training co-operative of public library authorities in Scotland, organised a one-day event of library automation, aimed specifically at Library Assistants. It was subtitled 'Computers for Idiots' - and was intended as a first acquaintance. The opening session was a glossary of jargon in very simple terms, for example, mini-computer: small computer, main frame: larger computer.

The audience on the day was almost entirely professionals - a common explanation being that the Library Authorities would be happy to send their Assistants to a later course but first of all the professionals wanted to know. The delegates inlcluded a number of Depute Chief Officers. The National Weekend School of the Association of Assistant Librarians which was held in 1979 was organised around a similar concept and just to underline this point, was heavily over-subsribed.

At Falkirk, there was no grouping of views by level of staff hierarchy other than the Senior Staff directly involved with planning and implementation who showed the only spontaneous and sustained enthusiasm. The professional specialisations of staff did not appear to generate particular viewpoints either.

As far as personality is concerned, this ran true to form, with conservative minded staff not accepting all the arguments put forward for automation while the more liberal folk thought that it was right and just for Falkirk to have an automated system because other systems already had one and the matter was not questioned further.

Before we leave these variable factors, I would like to mention the Trade Union attitude to automation which appears to vary substantially between Unions and seems to vary within a Union, from locality to locality. A number of authorities, including Glasgow City Libraries, have been forced to abandon the use of Manpower Service Scheme labour following Trade Union pressure. Falkirk, on the other hand, has been able to enjoy a constructive attitude from the Union regarding this matter, although of course, all items relating to new technology were blacked during the recent dispute over pay comparability.

The original programme of automation was to be cataloguing, followed by circulation and then on-line acquisition. Later, as the Working Party developed, a Word-Processor was used for a number of applications including the updating of District Council Minute Indexes, Subject Indexes, Filing Lists, and Museum Thesaurus. Teletext was introduced at the Information Centre and On-Line Information Retrieval installed as part of a British Library experiment. These new procedures are not simply departmental initiatives, but, in many cases, they were informed responses to activity outwith the Department. Perhaps the prime example being upgrading of the local authority computer.

It was considered essential to try to stimulate a positive attitude within the Department before the implementation of the new procedures. It was recognised that staff must become:-

1. CONFIDENT

2. INFORMED

3. AWARE

4. TRAINED

It was further recognised that the problems and solutions related to all staff and not to specific sections. And finally, that the most effective approach was likely to be a simple, popular one.

Finding a focal point for the proposed campaign was easy. I mentioned earlier that the procedures of cataloguing and circulation were unsatisfactory. The issue system was a mixture of Browne and Photocharging. The photocharging system involved disposable transaction cards, visible indexes for reservation checks and sheer drudgery when preparing overdues. It was a simple matter, therefore, to indicate the advantages that would have meaning for all staff - from the Saturday Library Assistants who would no longer have to check visible indexes to the Section Heads who would have a more flexible staffing resource.

The initiation procedure, if I may call it that, was broken down into various headings:-

1. EXTERNAL TRAINING COURSES

2. IN-SERVICE SEMINARS

3. WEEKLY NEWSLETTER ITEMS

4. VISITS TO OTHER AUTHORITIES

5. STAFF PLACEMENTS

6. STAFF LIBRARY

7. ON-SITE TRAINING

1. External Training Courses

Virtually anything that was going, e.g. 24 members of staff to the C.S.T.G. Courses gradually became more selective. A custom-built one-day course was held at the local college of technology organised by the teaching staff of the Computer Department, but this received an emphatic thumbs-down from the delegates who felt that the lecturers were learning more than they were teaching.

2. In-Service Seminars

Mostly aimed at the supervisory staff who would pass the contents on to the staff of their own section. Included outside speakers, especially at the beginning.

3. Weekly Newsletter

The Newsletter goes out each week to all members of staff. We tried to get all staff gradually accustomed to the idea of computers by feeding a little news item in each week in a popular fashion and this ran for 35 weeks.

4. Visits to other Authorities

Members of the Working Party and other senior staff to public, academic, and industrial libraries.

5. Staff placements

This included a one-week exchange of a professional member of staff between Falkirk and Motherwell Library systems. The Falkirk representative was able to use the Motherwell automated issue system and got some idea of the administrative background. It was originally agreed to send at least one Library Assistant from each service point to work on the counter at Motherwell for at least one day. However, following the initial exchange, it was felt that the administration differences would be so great as to become counter-productive. Three members of the Bibliographic Services staff spent a day at the National Library of Scotland to obtain training in, and experience of, the compilation of EMMA Catalogue entries.

6. Staff Library

A wider range of monographs on automated systems were purchased and an emphasis placed on dissemination to staff of relevant items in periodical literature.

7. On Site Training

There was considerable liaison with the Automated Services Working Party and the Training Services Working Party to ensure that training aids, including programmed teaching packages, were ready for introduction at the appropriate time. The final stage of on-site training was practice in the use of the equipment after it had been installed, but before the 'live' date.

Despite the time and effort put into this activity, a common complaint from staff not directly involved with the implementation, was that they were receiving inadequate training. They were told to relax, that it may seem unfamiliar now but that they would receive the appropriate training at the appropriate time - in other words - "It would all be right on the night". I think that this proved to be the case despite a few emotional 'highs'. We all work within limited means and there is obviously a delicate balance to be achieved here.

Now this exercise was expensive and I was keen to obtain some sort of objective evaluation of its effectiveness. The informal feedback in a small compact unit like Falkirk District was valuable and the matter was also discussed more formally at the Working Parties. However, in January of this year, Heather Carroll and Norma Miller, two Post-Graduate students from Queen's University, Belfast, were carrying out fieldwork with us and were looking for research projects. They were very personable and quickly built up friendly links with the staff they were working beside. It seemed an ideal opportunity and after discussion they agreed to base their projects on the attitudes of Falkirk staff to automation. One dealt with the general cataloguing and circulation system and the other took the specific topic of information retrieval. Part of these projects were interviews with anonymous members of staff, both professional and non-professional, where the same questions were posed. It was a small sample, with eleven staff participating in the first survey and ten staff in the second. I should not like to pretend that this sample was anything other than an informal attempt to guage attitudes but the following selected points may be of interest to you:-

HEATHER CARROLL'S QUESTIONS

1. What difference do you think automation will make to the service offered by the library?

   Note: Answers included "There will be a great improvement...", "Services will noticably improve", "more efficient", "improved speed and effieciency", "staff will be freed from routine work" and "Every aspect of the service will be better".

Although the support was unanimous it must be seen in the context of a system operating an inefficient mix of Browne Issue and photocharging.

2. Will it make your job any easier?

   Note: Ten replied "yes", with one "don't know".

3. Do you foresee any major problems once the system is in operation?

4. To what extent have you been involved in the progress towards automation?

5. Did the weekly computer column in the Newsletter help to clarify things and explain any points you were unsure of?

   Note: Answers included: "Helped to keep one up-to-date but did not improve real confidence in ability to cope with actual operations", "Covered areas already dealt with in professional education", "Explained things already known", "No, found it difficult to grasp the written explanations", "Non-professional staff found them rather confusing", "Found them useful and informative", "Yes, very helpful".

6. Of how much benefit will the new microfiche catalogue be in the day to day running of the library?

7. What part do you think SCOLCAP have played in Falkirk's automation project?

8. Do you think the automation programme might have been implemented in a better way? What would you have done differently?

   Note: Answer included: "The use of MSC staff might cause future problems", "Not very happy about use of MSC staff", "MSC staff created difficulties", "MSC staff had less interest than permanent staff".

   and

   "MSC staff had done a good job; could never have managed to get the work done otherwise", "Good idea to use MSC staff".

9. Is a "Computer Expert" needed in the library?

   Note: 8 say "No", 1 says "Yes", 2 "don't know".

10. Do you feel that you have received adequate education and training in preparation for automation?

    Note: Answers included "Plenty of theory but not enough practice", "Adequate explanations and theory", "Not personally", "Personally, yes", "Yes, personally no complaints", "Adequate information and explanation", "Not yet".

NORMA MILLER'S QUESTIONS

1. Are you familiar with BLAISE and what it involves? If so, from what source?

2. Would you be prepared to operate the service if training was given?

   Note: 10 say "Yes" (including 1 "Yes, unhesitatingly!").

3. Do you see on-line information retrieval as an essential improvement to Falkirk District Library Service?

4. How do you think on-line information retrieval compares with traditional bibliographical tools?

5. What disadvantages do you see in the operation of an on-line service in a public library?

6. Where do you think an on-line service terminal should be placed for maximum potential use?

   Bib. Services
   Reference
   Lending
   Information Centre?

7. Who would you identify as potential users of an on-line service in a public library?

8. In what ways do you think this service should be promoted to the public?

9. What is your opinion of introducing some form of charge to the public for the on-line service.

   Should it be: (i) Totally cost effective
   (ii) Nominal fee to discourage abuse of system
   (iii) Free to all users.

10. Do you think this service will justify its expense in terms of use and staff time?

    Note: 1 says "yes", 1 says "no", 8 say "perhaps".

Some replies made us sit up and think - particularly the effectiveness (or otherwise) of the involvement of Library Assistants. However, this had been anticipated as I mentioned earlier. Since these brief surveys took place, the equipment referred to has been installed. Initially, counter staff were allowed to literally 'play' on it and this was followed by structured training and role playing. The system is now operating and the staff appear happy and confident with it.

Over all, the surveys were reassuring. The staff had a distinct impression of the avowed purpose and benefits of the general automation programme and this had been our objective. They were keeping an open mind on the information retrieval which was a one year experiment and all the options had been kept open.

Just a few concluding comments. To echo the Conference title: The management of technical innovation at the end of the day is the management and motivation of human beings. It is about avoiding trauma for staff and users.

Converting fear into confidence has been my theme today. I would say that there is one category of staff who presented no problem in this respect - and that is staff with direct previous experience - I suppose

it could depend where you come from! At our staff selection interviews, previous experience of automated systems gained an enhanced value factor and shouldn't be underestimated.

There is another category of course, we should be brimming over with confidence - the managers of the technical innovation. It is the responsibility of the manager to plan the system effectively, to anticipate the problems and to make the promised package work. It is easy to build up the confidence and the skills of your staff - the difficult task is ensuring that the system is implemented in such a way that it justifies their goodwill.

If the implementation of an automated system does not result in an improved service to readers then it is not worth starting. The really skilled manager will have the confidence to make the conscious decision not to automate if the potential improvement cannot be clearly demonstrated. I would contend, as my profound closing remark, that the job satisfaction of your staff and the customer satisfaction of your users is worth far more than all the computers you could shake a stick at.

THE EFFECTS OF INTER-LIBRARY CO-OPERATION ON THE PRIORITIES OF INDIVIDUAL LIBRARIES

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1. Local context

St. Andrews is a small, somewhat ancient University with a student population struggling to grow above 3,500. The University Library dates from the beginning of the seventeenth century and incorporates even older libraries once belonging to the arts and divinity colleges. It thus has particularly rich collections of older material, reflecting over 300 years of continuous acquisition by purchase, donation, and copyright deposit during the eighteenth and early ninteenth centuries. Until very recently there was no de-acquisitions policy - no disposal of duplicates (or apparent duplicates) from stock - and consequently the Library is something of a treasure trove for historical bibliographers.

We have Faculties of Arts, Science and Divinity but not of Law or Medicine or Engineering (which we lost to Dundee when St. Andrews split in two) and there is now an embryo Social Sciences Faculty, with a fairly strong Department of Psychology at its centre.

Our preoccupations are those of every university library in the country- how to make adequate provision for the teaching, research and learning needs of our academic staff, our postgraduate students, and our undergraduates - all within an increasingly restricted budget. We operate from a central library housing most of our arts, divinity and life science material, and in addition administer several outlying libraries, including a combined modern languages library, a divinity class library and a complex of physical science libraries. Our Main Library (which is already getting full) was intended to be Phase 1 of a three-phase building, but of course, like all UGC-funded libraries, we have little immediate hope of getting approval for any extensions, and already some of the outlying libraries contain substantial sections of main library stock.

Our nearest neighbour, Dundee University, was at one time a constituent part of St. Andrews University. In 1980, when University College Dundee and the University of St. Andrews entered into formal union, St. Andrews was what has been described as a "small seaside resort for the upper middle classes, with a poor but pretentious university", while proletarian Dundee (13 miles away across the Tay) benefited from a millionaire dynasty which was prepared to put a great deal of money into local education(1).

In the 1960's, after protracted and sometimes acrimonious negotiations, Dundee broke free to become an independent university. Now, twenty years later, we are both poor, both at the mercy of the UGC, and both looking for ways to come closer together again without sacrificing vital interests on either side. The cynical might see this as co-operating with the inevitable - like the rape victim who decides not to struggle. Especially so in the case of the library staffs on both sides, who have had to work through the real problems of co-operation while their respective Principals

talked glibly (and publicly) about operating the two libraries "as one". It does seem to me however that there is a genuine desire on both sides to co-operate, which goes above and beyond the economic exigencies of the moment. Bernard Naylor remarks in a recent essay that, historically, libraries have made or used co-operative arrangements "only to satisfy a very small residual proportion of total demand"; but that currently, various factors - notably economic ones - are placing pressure on them to enter into more thoroughgoing arrangements(2). Because of, or perhaps to some extent in spite of, this pressure there has been a growing movement in St. Andrews and Dundee towards co-operation and collaboration, and this growing interdependence is reflected most obviously in a highly successful joint library bindery, which gives both libraries a much faster turn-round, at 20% cheaper rates than commercial binders - and with no automation! We have also established full reciprocal borrowing rights, preferential lending between the libraries, consultation on expensive acquisitions, co-ordination of serial subscriptions and a good deal of informal help in other ways. All of this helped by an hourly free minibus service both ways and by good personal relations at the top and at middle management level: in other words, good communications, which do seem to be the essence of any successful co-operative enterprise.

2. Regional context

Both St. Andrews and Dundee are members of SCOLCAP, our regional co-operative. Dundee was one of the six founding members (in 1973) and has therefore had more than its fair share of the hopes, disappointments, frustrations and sheer hard work that go into setting up a co-operative. We joined four years later - late enough to avoid some of the early grind but not too late perhaps to have had some influence on the direction that SCOLCAP would later take; and I must say also that we too have now been in long enough to experience some of the difficulties and frustrations of trying to set up a sophisticated on-line system. (There seems to be a kind of Murphy's law of inter-library co-operation which decrees that the greater the benefit you allow yourself to hope for the longer it will take to achieve).

Perhaps it is simply that most co-operative schemes are too ambitious at the outset, and involve too many people with too many conflicting interests. The benefits to us of co-operation with Dundee are still fairly modest, but they are tangible, immediate, and seen to be real benefits. The benefits of co-operation within SCOLCAP are potentially much greater, but most of them have still to arrive, and there is for our own staff and readers a growing credibility gap between what is promised and what seems likely to materialise that is becoming every day harder to bridge.

Should we in SCOLCAP take consolation, then, from Rosenthal's (3) observation that "One of the quite legitimate functions of (publicly) funded experiments is that of failure: the opportunity to test provocative concepts and, sometimes, to fail in contexts where failure is not disaster..."? Or should we take warning from his description of certain co-operative schemes in the United States which have "... progressed to various stages of realization and either (a) self-destructed with as few shock waves as possible; (b) retreated to considerably more modest goals than were announced with trumpets and flourishes at the outset; or (c) regrouped with changed intentions, (changed) organisation and (perhaps most importantly) changed personnel"? We hope not.

Of course there are many examples in the United States - and indeed here in Britain - of co-operative schemes which are highly successful, especially where they have made use of advanced technology in computers and telecommunications. I certainly do not think that we are going to have to fit SCOLCAP into one of Rosenthal's 'failure' categories - and as a matter of fact, the latest signs are that, after a long period of doubt, the original SCOLCAP proposal for an on-line system, with a fast, shared link to BLAISE, is going to become viable again. But the fact that on-line SCOLCAP - as someone once said of the future - is coming, but not yet, must make individual SCOLCAP members rather wary of putting all their eggs into the SCOLCAP on-line basket. All inter-library co-operation contains an element of altruism, but it must be firmly rooted in self-interest - enlightened self-interest but self-interest nevertheless. At the end of the day, co-operation is only going to work if each participating library has a clear and responsible expectation of benefit. And that means that the system offered must be flexible, cost-beneficial, and responsive to user requirements.

3. Local objectives

Our own reasons for joining SCOLCAP can be stated fairly simply. First, we were convinced that we could achieve economies by using centrally produced MARC records, and even more so by using them in the context of a co-operative on-line system in which records for extra-MARC material would also be shared. These machine-readable records were, we felt, flexible enough to allow for long-term changes in catalogue and other output requirements. We liked the fact that SCOLCAP intended to develop an integrated system in which a single set of bibliographic data could be made to serve a variety of purposes - selection, acquisition, cataloguing, etc. And we were impressed by the fact that it was a broadly based regional system in which library resources - including bibliographic data - would be shared amongst a number of different types of institution. Most important of all, SCOLCAP was seen by us as a potential node in an emerging national on-line library network.

In other words, we were interested as much in the prospects for improved bibliographical access and control through SCOLCAP and the consequent gains for scholarship, as we were in the potential savings in the costs of cataloguing(4); and we felt that our own staff had much to gain from the experience of co-operating, and of learning from the problems of other libraries with different traditions and different priorities. Not of course that we had no interest in reducing costs - on the contrary. St. Andrews is not, I suspect, much different from other academic libraries of a certain vintage in having a fairly large complement of senior staff apparently spending a lot of their time acquiring and processing books. For several years now we have been looking for ways to delegate tasks which, traditionally, were carried out by fully qualified staff, to junior, and therefore less expensive staff. In fact our staff costs amount to just over half our annual budget, so that we are not very different from most academic libraries in the country. The point is however that what we are getting for our money is perhaps less than some other libraries of a similar size and complexity. Just as librarians generally have become access - and user-oriented rather than collection-oriented, more concerned with the objectives of collection development and less with the mere mechanics of acquisition, cataloguing and conservation, so we in St. Andrews feel that we want to move our staff

establishment away from the traditional "housekeeping" activities toward direct service to readers. And here I am thinking of

(i) reference and information work, including on-line retrieval (on which we have already made some real progress)

(ii) more varied and more systematic forms of user education at both undergraduate and postgraduate levels; and

(iii) better collection development policies, based on more satisfactory liaison with academic departments, with perhaps, some form of subject specialisation.

Not only is inter-library co-operation helpful to this process, we see it as absolutely vital.

4. Local priorities

It is some time now since we took the decision to automate our major labour-intensive operations, namely cataloguing, acquisitions and circulation control. We decided that co-operative systems development was the best way forward, but we took the precaution of appointing our own library analyst/programmer and setting up a small systems team to oversee all automation projects. As things turned out, co-operative systems development proved feasible (or seemed to be feasible) for cataloguing and acquisitions, but not in our case for circulation control, though our library mini (on which the planned circulation system will run, and which we share with the University Administration) is operated by a separate computer unit which is doing most of the programming for us. Even so, our own programmer is fully occupied on projects such as serials control and book-fund accounting, and on developing a 'front-end' to the LOCAS[5] batch cataloguing service, as well as an SDI bulletin based on LOCAS tapes and an interface between the cataloguing system and the circulation files.

It is sometimes said that co-operative systems development removes the need for a library to maintain its own systems staff. I of course have a vested interest in refuting - or at least challenging - that claim, but it depends of course on what you mean by systems staff. For us it simply means a group of people - or even one person - whose primary responsibility down the line is the management of change. The change may be technological or it may not, but with good judgement and a bit of luck it will be change for the better - whether to a better manual system or a better automated system. The systems group need not contain computer professionals but it should at least include people who are capable if necessary of talking on equal terms to computer professionals, and who know how the library actually works and can explain it clearly to other people.

That is what we mean by systems staff and, so far as we are concerned, no library should be without them if it is contemplating major changes in its operating procedures. We in St. Andrews have access to the University mainframe as well as to an in-house mini; we are also BLAISE/LOCAS customers and of course we hope eventually to have access to the SCOLCAP machine. There you have at least four groups of computer-related professionals with whom we have to deal, and if our future depends on these people it is absolutely vital that we communicate effectively with them.

I mentioned earlier that we wanted to move our staff away from 'backroom' activities towards direct reader service; and in particular, I said that we wanted to improve our collection development policies. We know that we buy many books and periodicals which are simply not used, or at least not used often enough to justify the cost of acquiring, processing and storing them; and we also know that many of the books we buy are simply not available to enough people at the right time. Like everybody else, we are in a situation where money is tight, and we need more than ever to be sure we are spending it wisely. Figures for university library spending over the last decade indicate not only a marked decline in effective growth of expenditure since 1974 but also that books as opposed to serials have been particularly badly hit(6). The trend in St. Andrews is I think one that many academic librarians will recognise.

The cost of acquiring publications generally shot ahead of our ability to pay for them but science serials in particular soared and a 60:40 ratio for books versus serials in 1970 was more or less reversed during the period 1974 to 1978. My own library was one of several which then made determined efforts to restore the balance. Our first attempt involved persuading faculty to accept a percentage ceiling on serials expenditure, and of course we encouraged everyone to prune as much dead wood as possible. But recently we have embarked on a second round of cancellations in collaboration with Dundee, in an effort to reduce the number of titles held unnecessarily on both sides of the Tay. Clearly there is a lot of scope for co-operation in the acquisition of periodicals, especially when, as in this case, it is possible to exchange current parts and to make photocopies of journal articles available quickly to the other side; and when relatively few bibliographic records are affected. And, of course, the financial savings can be both long-term and substantial.

We are aware, then, that co-operative acquisition schemes and interlending can help to make the most of what resources we have. But we also know that it is not enough to share resources if their total is inadequate, and our first priority at St. Andrews is still to obtain adequate funding to meet the needs of our primary clientele, namely our academic staff and our students. It is, as De Gennaro (7) says 'foolish to imagine that we can all become bibliographically rich by pooling our bibliographic poverty' and important that those who hold the purse strings should not misunderstand the purpose of resource sharing and use it as an excuse for further cuts in library budgets. Nevertheless, if we are not to fall victim to the law of diminishing returns we must learn to identify and acquire core material for our own local library, and rely on other libraries for the rest. In other words we must move towards what Swanson (8) has called an 'increasingly centralized or global bibliographic apparatus', while developing local collections 'ever more adequate to specific institutional concerns'.

This was why St. Andrews in particular placed great emphasis on SCOLCAT - the SCOLCAP union catalogue - being not just an authority file for shared cataloguing, but a public service tool which could help direct our users towards resources held outside St. Andrews. And within our own University, the new COM cataloguing system has provided a means for bringing together the contents of our main, class and departmental libraries in a single, unified catalogue which can be displayed throughout the University.

5. Regional objectives

In recent years the National Library of Scotland has been encouraging Scottish universities and the major city libraries to produce detailed acquisition policy statements and to report actual or intended expensive purchases, as a first step towards building up resources on a regional basis. But the full benefits of co-ordinated acquisitions will (we think) only begin to be obtained when SCOLCAP includes all the major Scottish libraries (including Edinburgh and Aberdeen Universities) and when its union catalogue is displayed prominently in member libraries for public as well as staff use. Even better will be when acquisitions staff have on-line access to the holdings and on-order files of other member libraries, and when the long-awaited regional transport scheme finally gets off the ground.

I am not suggesting that there is any serious intention of cutting ourselves off from BLLD's superbly efficient interlending system on which St. Andrews, like most other academic libraries, relies for something like 85% of its borrowing requirements. But we see no reason why regional interlending and regional co-operation should not be encouraged to complement rather than supplant central services provided by the British Library. Nor is there any reason why, in a relatively compact area like the central belt of Scotland, which includes (after all) five universities and two major city libraries (with Dundee and St. Andrews within easy reach), our readers should not benefit from going to other libraries instead of getting material on inter-library loan.

6. Regional priorities

It has been said that 'no library system, however small, should be planned and implemented without considering its inter-relationships with other potential systems, and how the interface can be maintained successfully'(9). Like most libraries with planned or existing automated circulation systems, we aim to hold statistical data in the circulation files which will link in a general way to acquisitions, so as to allow us to monitor and improve our selection policies. But in the longer run we should like to see circulation data used co-operatively within SCOLCAP to help predict the future use of items which libraries plan to acquire.

Already book selection absorbs a good deal of library staff time, and it does not seem sensible to put more time and effort into it through, for example, subject specialisation without at least investigating the possibility of using statistical methods to aid selection. We look to on-line systems - particularly co-operative ones - to make possible more sophisticated decision-making in the area of acquisitions, based on what Kent(10) calls the 'analysis of risk' - a difficult, but surely fruitful area for further research. Inputs to such a system might include language, publisher, date of publication, and subject descriptors. Output would consist of estimates of probable future use (over a given period of time) both within the co-operative and within the individual library. This 'probable use' factor would obviously have to be set against cost, and other, less easily defined, factors before a decision to purchase was taken.

7. National context

No discussion of a university library and its problems is complete without mention of the Atkinson report. Atkinson [11] has been criticised on many counts, but it is difficult to disagree with his fundamental assumption (which is, incidentally, one shared by Parry[12] some ten years earlier), that there are desirable limits to growth, that bigger does not inevitably mean better. Even if one leaves aside the capital and recurrent costs of storing an ever-expanding collection, the costs of acquiring and processing library materials are such to rule out of court any possibility that all but a few giants will keep pace with the unending stream of new publications. For the vast majority of libraries therefore the safest assumption is that available resources will allow them, individually, to acquire only a relatively small and diminishing proportion of the world's total published output. This need not, and should not, be a cause for despair. If each individual library is part of a global network which is daily growing in sophistication, then each, potentially, is in a position to bring its users into contact with what Hamburg[13] calls, in a memorable phrase, the 'universe of bibliographic materials'.

8. National objectives

At the hub of the national (United Kingdom) network is of course the British Library in all its manifestations. The importance of BLLD as the national co-ordinating body for inter-library lending is obvious, and there are signs that the Reference Division is also moving towards the centre of the stage to promote a national reference/referral network. What we now need is a similar level of commitment to the development of a national strategy for bibliographic services. Indeed, viewed from our position as members of SCOLCAP, the absence of such a strategy is nothing short of a national scandal.

SCOLCAP was designed from the very beginning to be a regional node in a national network - not just a local agent for BLBSD selling BLAISE/LOCAS services to its members, but part of a distributed processing environment, in which the SCOLCAP machine would handle communications to BLAISE and take some of the processing load off the centre, while SCOLCAP cataloguers would contribute extra-MARC material to the national database. Take this idea a step farther and it is possible to see that if Bibliographic Services Division cannot or will not by itself handle satisfactorily the entire published output of the UK, and if certain libraries are prepared to adhere to nationally agreed standards, then there is no good reason in principle why they should not create MARC records for use by the rest of the British library community - in other words, distributed cataloguing as well as distibuted computer processing. Thus SCOLCAP could create UKMARC records for works published in Gaelic, or north of Berwick, and SWALCAP or a new Welsh co-operative including the National Library of Wales could do the same for Welsh books - and these MARC records might actually be available to the rest of us when they are needed, not some twelve to eightenn months later.

We are of course aware that the long-standing debate as to whether a library catalogue should be a finding list of a bibliographic tool has still to be resolved, and we are also aware that, as the technology develops and on-line catalogues become a possibility, the usefulness of existing input standards needs to be questioned[14]. In our view, however, such standards should be looked at in the context of a national and indeed

an international bibliographic network (even if the latter is still largely theoretical), rather on a purely local or regional basis. Until it can be shown that brief records will suffice throughout the network we think that fuller rather than briefer records should be input for all but purely ephemeral material. Certainly we accept that it is possible to make savings in individual catalogues by using briefer entries, but this is, surely, a matter of tailoring output requirements by profile, rather than circumscribing output possibilities for the future by the too hasty adoption of short-entry input standards.

9. National priorities

It is difficult to see how there can be room in a country the size of Great Britain for more than one bibliographic utility on the scale of OCLC, RLIN or the Washington Library Network - and certainly not for more than two. Given that there are already two very large databases in the UK (one of them on-line and the other about to go on-line), and the possibility that other co-operatives may be tempted along the BLCMP road towards virtual independence from the British Library, there is obviously scope for agreement at national level on the future roles of the major co-operatives and their relationship with each other and with the BL.

So far there has been a silence from BL on this topic which can only be described as deafening. It is, I think, an open secret that a distinguished former Director of the Bibliographic Services Division prepared a draft consultative document which was to be issued to the library community as a 'green paper' but was later withdrawn. We are told that a replacement version is on its way. But meanwhile the BL's understandable efforts to establish itself as the market leader in bibliographic services are in danger of discouraging inter-library co-operation by making it uneconomic to share MARC records. Unlike the Library of Congress, which has a long and honourable tradition to maximise the use of records which it creates, the British Library seems more interested in maximising revenue. The point was put very well in a recent BLR&D report on library co-operation(15), to the effect that the kind of institutional and management considerations which push the BL towards an illiberal policy in relation to MARC records may welll have to take second place to questions of overall economies in the provision of library services in this country - this would of course tend to argue for bibliographic data being made available on the least restrictive terms possible.

It is a matter of the greatest importance for individual libraires within the co-operatives and outside that they, the co-operatives, and the British Library should recognise that they have complementary and not competing roles; and that this recognition should be embodied in practical agreements not in pious proclamations.

What better example of non-co-operation could there be than the BL's decision, on the one hand, to embark on GK3 and, on the other, to scrap MERLIN - or rather, to put it, like the Sleeping Beauty, into a state of suspended animation? Just when authority control is most needed - to help us cope with AACR2 - the means of achieving it are denied us. But at the same time it is proposed to go ahead with a massive retrospective conversion exercise (on a file which is not AACR1 - never mind AACR2 - compatible), the benefits of which to the UK library community as a whole are problematic to say the least(16).

10. Future developments

But looking optimistically to the future, we should like to see a situation developing in which co-operative systems within the regions interface on-line to BLAISE (and perhaps eventually to each other); and where the intelligence provided by local mini or micro-computers can be truly integrated into the national network, in such a way that individual libraries are able to provide their users with increasingly sophisticated levels of on-line access - local access to on-line mini-catalogues, regional access by moderately sophisticated search keys to the regional database, and national access through a full range of index terms, title keywords and subject descriptors to a truly national database.

Unfortunately this seems to be at the frontiers of technology so far as U.K. systems are concerned, though clearly the Americans are already moving strongly in this direction. We in St. Andrews would like to see our mini linked directly to the SCOLCAP machine so that our catalogue and circulation files could be updated simultaneously - or even be completely integrated - though I am assured that it is still more cost effective to send someone up the M1 (or in our case the A92) on a motorbike with a magnetic tape strapped to his back than it is to send a stream of machine-readable data down a fast line from one computer to another. But who knows - one of these days our dream may become a reality, and it may be sooner than we think.

11. Conclusion

The concept of inter-library co-operation is not new. (It is said that two hundred years before the birth of Christ the fabled library at Alexandria lent out books to the equally legendary library at Pergamum[17]. What is relatively new perhaps is the idea that libraries are not about books but about the transfer of information and that the individual library is simply a node or switching centre in a global information network. This developing network is of course founded on co-operation between libraries and other information centres and its existence is causing a fundamental reappraisal of the way libraries operate.

To see co-operation as a way of providing the same service at less cost is in our opinion too simple and too narrow a view. Beyond the use of co-operation to maximise resources and the use of these resources (and here I am paraphrasing Jefferson[18]) is the possibility of improving service performance, of extending the range of services and, ultimately, of setting new objectives not feasible for the individual library but which can be achieved by libraries and librarians acting together in concert.

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Caveat

This paper was written early in 1980. Since that time there have been some extremely encouraging developments at BLBSD and my comments may (with hindsight) appear to be unnecessarily critical. They should however be seen as reflecting an earlier situation.